



A 5-year retrospective study assessing the association between seasonal and meteorological change and incidence of aneurysmal subarachnoid haemorrhage

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Abstract:

OBJECTIVE: Seasonal variation in incidence of spontaneous subarachnoid haemorrhage (SAH) is well recognised. This retrospective single-centre study aimed to characterise seasonality of SAH in the temperate climate of London, UK and to determine associations of incidence with meteorological variables. We further investigated whether associations vary according to location of aneurysm. **METHODS:** Admission data on 647 patients admitted with spontaneous SAH from December 2003 to August 2008 was analysed using our neurosurgical referrals database. Average monthly incidence of SAH was correlated with local temperature, atmospheric pressure and humidity data. In a subset of 467 patients, impact of aneurysm location on seasonal variation was evaluated. **RESULTS:** A non-significant bi-annual peak incidence was observed in Spring and Autumn with a trough in Summer (chi(2) Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.5, p Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.47). This trend was particularly marked with middle cerebral and posterior communicating artery aneurysms. However, anterior communicating artery aneurysmal SAH peaked in Summer only. SAH incidence correlated significantly with average humidity (coefficient 0.213, CI (0.02-0.404), p Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.035) and peak humidity (coefficient 0.128, CI (0.008-0.248), p Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.041). Temperature and atmospheric pressure did not correlate with incidence. **CONCLUSIONS:** This study illustrates a pattern of variation in SAH incidence similar to that seen in other populations and climates. However, our data suggests that this pattern differs according to aneurysm location. Unusually, we also find that humidity, and not temperature or atmospheric pressure, correlates with SAH incidence. Seasonal variability in aneurysm rupture is likely to be multifactorial, but meteorological factors may play an important role.

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Resource Description

Exposure : ☒

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Temperature

Climate Change and Human Health Literature Portal

Temperature: Fluctuations

Geographic Feature: ☒

resource focuses on specific type of geography

Urban

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : England

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Cardiovascular Effect

Cardiovascular Effect: Stroke

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified